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Drawing on LGB Identity to Encourage Participation and Disclosure of Sexual Orientation in Surveys

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Abstract

This paper reports an experiment that tested how three survey cover designs—images of traditional families and individuals displaying themselves in typical gender ways; images of lesbian, gay, and bisexual (LGB) and heterosexual individuals and families; and no cover images—affected LGB people's participation and disclosure of LGB identity and non-LGB people's participation. Analyses showed the LGB-inclusive cover led to significantly more LGB respondents than the other designs, without significantly affecting the demographic, political, and religious makeup of the completed sample. We discuss what these findings mean for addressing two challenges: getting LGB people to respond to surveys and to disclose their LGB identity.

Keywords: Lesbian, gay, bisexual, mail surveys, images

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Introduction

Policymakers and researchers across many fields require quality survey data about the lesbian, gay, and bisexual (LGB) population to estimate its size and to understand the social, political, economic, and health outcomes of them and their families (Cahill and Makadon 2017; Fredriksen-Goldstein and Kim 2017; Stall et al. 2016; Kelly, Carpiano, Easterbrook, and Parsons 2014; Berry and Gunn 2014; Meezan and Martin 2009; Meyer and Northridge 2006; Gates and Sell 2007). Some LGB people¹, however, may not respond to surveys because they find surveys uninteresting or perceive that the research sponsor is unaccepting of their identity if the survey design and content are not inclusive of their social identity. Other LGB people might not participate or might decide to conceal their sexual orientation because of the social stigma attached to being LGB (Badgett and Goldberg 2009; Catania et al. 1990; Durso and Gates 2013; Gates 2011; Herek 2016; Michaels 2013; Ragins, Singh, and Cornwell 2007; Sylva et al. 2009). LGB people may be concerned about lack of confidentiality of data or might feel exploited as subjects of research (DeBlaere et al. 2010). The solutions to these challenges are to design surveys that appeal to and foster trust with LGB participants.

LGB people's participation and concealment of their identity in surveys are significant because as a small population, even small amounts of error affect estimates of the LGB population's size and the ability to identify them and their families for research (Carpenter and Gates 2008; Cheng and Powell 2005; Fredriksen-Goldstein and Kim 2017; Lofquist and Lewis 2014; Savin-Williams and Joyner 2014; Umberston et al. 2015). Moreover, conclusions made about LGB people may be misleading or wrong when certain segments of the LGB population do not participate or if they conceal their LGB status in surveys (Schumm 2012). Even researchers interested in the general population as a whole lose out on including perspectives and outcomes of the *entire* population if LGB people do not respond to surveys. Therefore,

1. While sexual orientation and gender identity are closely linked and often discussed together (Butler 1990), the two are distinct constructs, with current best practices suggesting asking about each separately on surveys (Federal Interagency Working Group 2016; The GenIUSS Group 2014). This study focuses exclusively on sexual orientation, to understand how tailoring survey requests around this specifically affects outcomes related to it.

researchers across many fields and even those not specializing in studying the LGB population would benefit from methods that improve the representation of all people in surveys.

Estimates using survey data range from 1.7 percent to 5.6 percent of Americans identifying as LGB (Gates 2011), with more recent data from the National Health Interview Survey (NHIS) at the lower end of the range at 2.3 percent (Ward et al. 2014). Scholars attribute some of this variation to survey features—such as question wording, interviewer- versus self-administration, survey topic, sponsorship, and location of sexual orientation questions in surveys—affecting LGB participation and disclosure of sexual orientation (Badgett and Goldberg 2009; Coffman, Coffman, and Marzilli Ericson 2016; Durso and Gates 2013; Gates 2011; MacCartney, Badgett, and Gates 2007).

While in-person surveys and recruitment can benefit from direct outreach to build rapport with the LGB community (DeBlaere et al. 2010; Ramirez-Valles et al. 2005), researchers conducting self-administered surveys are more limited in how to build interest and trust and communicate an accepting context to LGB sample members. One method to potentially address the challenges of getting LGB people to respond to self-administered surveys and to disclose their LGB identity is to provide a tangible indicator of LGB acceptance and inclusion in the survey request through tailoring (Groves, Cialdini, and Couper 1992; Haan and Ongena 2014). In mail surveys, the survey's cover can be designed to communicate acceptance of LGB identity and the importance of LGB people as respondents, similar to the way that businesses sometimes tailor advertisements to be inclusive of the LGB population, such as advertisements that feature images of same-sex couples with children (Borgerson et al. 2006; Italie 2013; Oakenfull and Greenlee 2005; Puntoni, Vanhamme, and Visscher 2011). In surveys, researchers often choose cover image designs that relate to a survey's goals and topics to brand the survey and motivate sample members to respond (Dillman, Smyth, and Christian 2014). The choice of images is important because cover images can affect response rates and who responds to the survey (Dillman 1991; Dillman, Smyth, and Christian 2014; Gendall 2005; Grembowski 1988; Nederhof 1988).

In this paper, we apply LGB-inclusive tailoring to a mail survey design to encourage LGB people to participate and disclose their sexual orientation and marital status. While the practice is increasingly

common in advertising, it has yet to be empirically tested in survey research. For our study, we use data from a cover image experiment embedded in a general population mail survey of Nebraska residents to test whether LGB-inclusive cover images affect the percentage of LGB people in the survey's sample. Also, because LGB-inclusive images may affect the participation of sample members if they view the LGB-inclusivity unfavorably, as offensive, or see the research as biased, we investigate the potential for LGB-inclusive cover images to generate a backlash in terms of who chooses to participate by examining response rates and the demographic, political, and religious makeup of the completed sample.

Why Might LGB People Avoid Participating or Conceal Their Sexual Orientation?

Social identity and stigma theories explain that LGB people share a sense of identity forged by shared non-heterosexual statuses (Angelini and Bradley 2010; Cox and Gallois 1996; Kaufman and Johnson 2004; Tajfel and Turner 1979), but experience stigma with this identity as certain segments of society negatively value non-heterosexuality (Crocker, Major, and Steele 1998; Goffman 1963; Herek 2016, 2009; Ragins, Singh, and Cornwell 2007; Whitehead, Shaver, and Stephenson 2016). Both social identity and stigma are important because they influence people's behaviors, thoughts, and emotions (Deaux and Ethier 1998; Levin and van Laar 2006; Miller and Major 2000; Ragins, Singh, and Cornwell 2007). As an invisible stigmatized identity, LGB people may learn or decide to conceal their LGB status, including in surveys, to avoid possible negative outcomes of outing oneself as LGB, such as harassment, prejudice, and discrimination (Gates 2011; Ragins, Singh, and Cornwell 2007; Schope 2002; Sylva et al. 2009). Even when confidentiality is assured in the survey request, researchers have found that some LGB people are reluctant to disclose their sexual orientation (DeBlaere et al. 2010; Gates ; Ramirez-Valles et al. 2005).

Why Might LGB-inclusivity Encourage Participation and Disclosure of Sexual Orientation from LGB Sample Members?

LGB people may be more likely to participate in surveys that draw upon LGB identity through inclusive tailoring because people are more

likely to be involved with activities and groups that embody their identity (Ashforth and Mael 1989). For example, research suggests this effect occurs with LGB-tailored advertisements featuring same-sex couples or other LGB imagery, such as LGBT pride flags (Borgerson et al. 2006; Italie 2013; Oakenfull and Greenlee 2005; Puntoni, Vanhamme, and Visscher 2011). LGB people and their allies have celebrated the inclusivity, and evidence suggests it is effective at garnering their business and positively influencing the perceptions of these brands among LGB people and allies (Peñaloza 1996; Tuten 2005).

This reasoning is consistent with the leverage-salience and social exchange survey participation theories (Dillman, Smyth, and Christian 2014; Groves, Singer, and Corning 2000). Leverage-salience theory contends some survey features will positively affect some sample members' likelihood of participation when made salient while these same features may negatively affect other sample members' likelihood of participation. Social exchange theory further explains that the features that have a positive leverage on participation are those that reduce the costs of participation, increase benefits of participation, and establish a trust that the benefits will be received. Thus, LGB-inclusivity in surveys is likely to motivate LGB people to participate because it communicates acceptance of LGB identity and the importance and value of LGB people as sample members. LGB-inclusivity reduces the sense of LGB identity being a stigmatized status and reduces the costs of outing oneself to what otherwise could be perceived as an unwelcoming entity if acceptance was not communicated in the survey contact.

LGB-inclusive tailoring is also likely to encourage LGB people to disclose their sexual orientation in surveys. As disclosure theory suggests (Jourard 1971), LGB people are more likely to reveal their stigmatized identity to people with whom they feel emotionally comfortable. Research shows that this happens in surveys (Catania et al. 1996). When LGB individuals perceive an accepting research context and legitimate reasons for being asked about sexual orientation, they are more likely to disclose their LGB identity (Bates et al. 2012; Durso and Gates 2013; Michaels 2013; Schope 2002; Sylva et al. 2009). Thus, LGB-inclusivity may affect both participation and measurement. Observing an increase in the percentage of LGB respondents when using LGB-inclusive designs may result because (1) the inclusivity encouraged LGB

people, who otherwise would not respond, to respond; (2) it encouraged LGB people who would have responded to disclose rather than conceal their LGB identity; (3) it discourages non-LGB people from responding (see the discussion below on participation of non-LGB people), thus meaning LGB respondents make up a larger proportion of the completed sample; or (4) a combination of these effects.

How Can Researchers Tailor Surveys to Be LGB-inclusive?

One design feature of mail surveys researchers can tailor to be inclusive of LGB identity is the questionnaire's cover page. Researchers typically choose cover image designs to convey a survey's importance and to make the survey salient, interesting, attractive, and memorable (Dillman 1991; Dillman, Smyth, and Christian 2014; Nederhof 1988). Generally, guidelines advise questionnaire designers to select a cover design that identifies the survey's sponsor and topic and appeals to as much of the target population as possible, such as using photos that sample members will recognize (Dillman, Smyth, and Christian 2014).

Studies about the effects of cover images on response rates find mixed results, showing both an increase in participation (e.g., de Rada 2005; Gendall 2005; Nederhof 1988), and no effect (e.g., Frey 1991; Gendall 1996; McFarlane Geisen et al. 2010; Sonnenfeld et al. 2009). Findings may be mixed because the choice of cover images matters. Grembowski (1988), for example, observed significantly higher response rates for a cover portraying a water fluoridation theme than a cover portraying a dental care theme for the same survey. This finding suggests that the choice of cover images is significant and might influence who participates. Yet no previous studies have examined the effects of LGB-inclusive cover images in mail surveys.

We hypothesize that an LGB-inclusive cover image design will increase the percentage of LGB respondents in the completed sample and the percentage of respondents who report being in same-sex relationships because it brands the survey as inclusive and accepting of LGB people, appeals to a sense of LGB identity, and conveys the importance of LGB people as respondents (Bhat, Leigh, and Wardlow 1996; Borgerson et al. 2006; Oakenfull and Greenlee 2005; Puntoni, Vanhamme, and Visscher 2011; Tuten 2005). LGB-inclusive cover designs are likely to exert a positive leverage on LGB sample member's

likelihood of participating in the survey and create a context in which LGB people are comfortable disclosing their sexual orientation. This tailoring may also encourage others who positively value LGB-inclusivity to participate, including family and friends of LGB people and those supportive of LGB rights (e.g., political liberals—Lewis 2011; Tuten 2005).

How Might LGB-inclusivity Affect the Participation of Non-LGB Sample Members?

While potentially positive for encouraging LGB participation and disclosure of LGB identity, LGB-inclusive cover images might have negative effects in general population surveys. LGB-inclusivity might decrease participation from subgroups that tend to be less tolerant of homosexuality and bisexuality. Drawing on social exchange and leverage-salience theories (Dillman, Smyth, and Christian 2014; Groves, Singer, and Corning 2000), an LGB-inclusive cover design may reduce the trust of some sample members if they view the inclusive cover design negatively or if they perceive the research as biased in favor of an LGB-rights agenda. For example, the portrayal of LGB identity might be viewed as a threat to a conservatively religious individual's identity who views homosexuality negatively. Similarly, the costs of responding may increase for some sample members if they perceive their participation as helping researchers with pro-LGB views. The diminished trust and increased costs suggest that LGB-inclusivity could have a negative leverage on these sample members' participation. As seen in advertising, LGB-inclusivity can cause a backlash in the form of negative reactions to LGB-tailored advertisements, including reduced purchase intentions, negative brand perceptions, and even Tweets, emails, and statements denouncing homosexuality and LGB-inclusivity and calling for boycotts of companies that embrace it (Hooten, Noeva, and Hammonds 2009; Huffington Post 2014; Oakenfull and Greenlee 2005; Sieczkowski 2012; Solomon 2014; Wong 2017, 2016). In surveys, no empirical studies have examined whether LGB-inclusive tailoring leads to similar results. We expect that an LGB-inclusive cover design will decrease participation of people among subgroups associated with lower tolerance of homosexuality (e.g., males, older individuals, people with lower education levels, political conservatives, and

more religious individuals—Baunach 2012; Nagoshi et al. 2008; Pew Research 2013). Thus, we hypothesize that the inclusive cover design may reduce overall response rates and change the completed sample's demographic, political, and religious composition, which could bias survey estimates.

Method

Dataset

To examine how LGB-inclusive cover designs influence LGB peoples' participation and disclosure of LGB identity and the participation of non-LGB people, we embedded a cover image design experiment in the 2013 Nebraska Annual Social Indicators Survey (NASIS). The NASIS is an annual, omnibus mail survey conducted since 1977. The 2013 NASIS was sent to a randomly selected address-based sample from the USPS delivery sequence file (DSF). A simple random sample of 6,000 Nebraska households provided by Survey Sampling International (SSI) was surveyed for the NASIS. Respondents were selected within sampled households using the next birthday technique (Gaziano 2005). Altogether, 1,608 respondents completed the NASIS for a 27.3 percent response rate (American Association for Public Opinion Research Response Rate 1 [AAPOR RR1]). While a response rate of 27 percent might seem problematic, nonresponse bias—when respondents are significantly different from nonrespondents on outcomes of interest—is the true concern and is not measurable by a response rate (Groves 2006). Our analyses here directly evaluate the question of nonresponse bias. Additionally, mail surveys obtain response rates higher than well-established telephone surveys, which currently obtain response rates in the single digits (Lavrakas et al. 2017; Marken 2018). As described in the methods section below, we use post-stratified nonresponse-adjusted weights to account for nonresponse, which is the approach used by most survey researchers and organizations (Keeter et al. 2017).

For the cover image experiment, sampled addresses were randomly assigned to one of three treatments (**Figure 1**):

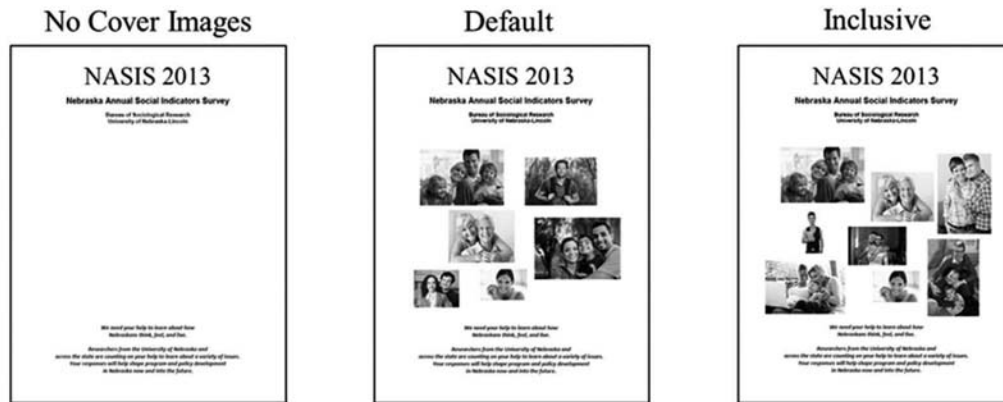


Figure 1. NASIS cover design treatments: no cover images, default, and inclusive.

- 1) A no image treatment—only the survey title and sponsorship information, no images.
- 2) A default treatment—pictures of opposite-sex couples and their families and individuals appearing in typically gendered ways.
- 3) An inclusive treatment—pictures of LGB and heterosexual individuals and opposite-sex and same-sex couples and their families.

The covers were printed in black and white because of budget restrictions.

Images for the default and inclusive treatments came from istock-photo.com by Getty Images, which provides a range of images tagged with keywords describing each image's content. We selected images for the treatments by whether the image was tagged with LGB-inclusive keywords or keywords that embody a non-LGB-inclusive definition of family and relationships. For example, one of the images of an opposite-sex couple with children was tagged with the following keywords: family, affectionate, father, mother, daughter, and son. Conversely, one of the images of a same-sex male couple with children included: gay man, homosexual, family, homosexual couple, affectionate, child, and parent. To reduce experimental confounds, we avoided images that could be considered racial and ethnic tailoring. The racial makeup of the photos were primarily white, which aligns with the target population in Nebraska. A study with a larger sample size and a more diverse target population could examine the combined effects of LGB- and racial-inclusive tailoring using cover images.

In addition, the default treatment included six images whereas the inclusive treatment included eight images. This difference was deliberate. We tailored the inclusive design to be LGB inclusive in a way that kept a balance of lesbian and gay couples with and without children, along with heterosexual individuals and couples. For example, one image of an opposite-sex couple with children from the default treatment was replaced by an image of a same-sex male couple with children and by an image of a same-sex female couple with children.

Measures and Analyses

Response Rates

To investigate whether the cover designs influenced participation, we used chi-square tests to examine if response rates differed between covers with and without images as well as across the three cover design treatments.

Prevalence of LGB People and Same-Sex Couples

We then examined the percentage of respondents who self-identified as LGB and reported being in same-sex relationships across the treatments (see Appendix B for question wording). For sexual orientation, the question asked respondents: “Do you think of yourself as: Heterosexual/straight; homosexual/gay or lesbian; bisexual; something else; not sure.” We coded respondents who identified their sexual orientation as “homosexual/ gay or lesbian,” “bisexual,” or “something else” as LGB and those who identified as “heterosexual/straight” as non-LGB. We included “something else” in the LGB code because it encompasses other terms people sometimes use instead of homosexual/gay or lesbian, such as “queer.” We treated “not sure” responses as missing values (the percentage of respondents responding as “not sure” and item nonresponse rates did not significantly differ across the three cover image treatments and no pairwise comparisons were statistically significant; results available upon request). Using this single item measure, the resulting estimate of the size of Nebraska’s LGB population is conservative. Sexual orientation consists not only of self-identity, but also of sexual attraction and behaviors (Badgett

& Goldberg 2009); therefore, we missed individuals who self-identify as heterosexual/ straight or not sure but have same-sex sexual attractions and/or behaviors.

In addition to the cover design experiment, we embedded a marital status question experiment in the NASIS (see Appendix B for the question wording). We identified respondents' marital status with the question: "What is your current marital or relationship status?" Respondents were randomly assigned to one of two sets of response categories for the question. Half of the sample randomly received a question with "same-sex" and "opposite-sex" categories (i.e., same-sex married, opposite-sex married, same-sex unmarried partner, opposite-sex unmarried partner, and so on). Among this half, we coded respondents who reported a "same-sex" relationship category as being in same-sex relationships. We, however, coded respondents ($n = 33$) who reported a "same-sex" category but reported their sexual orientation in a separate question as heterosexual/straight as not being in same-sex relationships. We assumed these are erroneous marital status reports. The other half of the sample received a traditionally worded marital status question. For this half, we coded respondents as being in same-sex relationships if they reported being married or cohabiting and identified as LGB in the separate sexual orientation question. See Stange (2014) for results of the question wording experiment.

We used survey design-adjusted F tests (converted from chi-square tests) and t-tests to assess whether the percentage of LGB respondents and the percentage of same-sex couples significantly differed among the cover design treatments. We then used design-adjusted t-tests to examine whether the percentage of respondents who reported being in same-sex relationships in each treatment significantly differed from Census benchmarks for Nebraska (Gates and Cooke 2011). The margin of error for state-level estimates of the LGB population at the state level is ± 3 percentage points. Because the 2010 Decennial Census data are based on a population count, there is no sampling error for this estimate. No official benchmark for the overall size of Nebraska's LGB population exists; there are only 2010 Decennial Census data on same-sex couples. We, therefore, compared the weighted percentage of respondents who identified as LGB to Gallup's estimate of the size of Nebraska's LGB population using survey design-adjusted t-tests

treating the Gallup data as a population value (Gates and Newport 2013). For the analyses of the prevalence of LGB people and same-sex couples, we used probability of selection and post-stratified nonresponse-adjusted weights for the NASIS and the svy procedures in Stata 13.1, treating the Gallup and Census data as population values (NASIS Methodology Report).

Completed Sample Characteristics

Lastly, we tested whether the LGB-inclusive treatment's completed sample was demographically, politically, and religiously different because subgroups who tend to be less tolerant of homosexuality might have been less likely to respond to a survey featuring an LGB-inclusive cover design. With the unweighted NASIS data, we used chi-square tests to examine if the demographic, political, and religious composition of respondents significantly differed across the treatments (sex, age, race, ethnicity, education level, households with children, and urban versus rural, political ideology, political party identification, 2012 Presidential vote, religion, born-again Christian identity, religious attendance and influence, and whether the respondent knows an LGB person). Using t-tests and benchmarks from the 2012 American Community Survey (ACS), we tested whether each treatment produced an unweighted sample pool that reflected the demographic composition of Nebraska's population in terms of sex, age, race, ethnicity, education level, and households with children.

Results

Response Rates

We found that including any cover images (default + inclusive) resulted in a significantly lower response rate than the cover without images (25.8 vs 28.8 percent, AAPOR RR1; $\chi^2(1) = 5.81$, $p = 0.02$) and that response rates differed across the three cover design treatments ($\chi^2(2) = 8.63$, $p = 0.01$). The cover treatment without images had the highest response rate at 28.8 percent followed by the LGB-inclusive treatment at 27.0 percent and the default treatment at 24.7 percent.

The response rates to the default and no cover image treatments were significantly different (24.7 vs 28.8 percent; $\chi^2(1) = 8.59$, $p = 0.003$), but no other pairwise comparisons were significant. Thus, we found that the choice of cover image design matters as any images (default + inclusive) resulted in a lower response rate than a simple cover without images, but the effect was driven by the default treatment's lower response rate. Moreover, we unexpectedly found that LGB-inclusive cover images did not significantly reduce response rates compared with the default and no cover image treatments.

Prevalence of LGB People and Same-Sex Couples

Table 1 shows the weighted percentage of LGB respondents and the weighted percentage of respondents who reported being in same-sex relationships (married or cohabiting) for each treatment. The percentage of LGB respondents significantly differed among the cover treatments ($F_{\text{Rao-Scott}}(3074.24) = 5.77$, $p = 0.003$). As hypothesized, significantly more respondents identified as LGB in the LGB-inclusive treatment (5.36 percent) than the default treatment (0.91 percent; $F_{\text{Rao-Scott}}(1) = 8.72$, $p = 0.003$) and no cover treatment (1.54 percent; $F_{\text{Rao-Scott}}(1) = 5.06$, $p = 0.02$). The percentage of LGB respondents did not significantly differ between the default and no-image treatments. The percentage of LGB respondents in the inclusive and no-image treatments was not significantly different from Gallup's estimate

Table 1. Percentage of NASIS respondents who reported being LGB or being in a same-sex relationship by cover design treatment (weighted percentages).

	<i>Total Sample</i>	<i>Inclusive</i>	<i>Default</i>	<i>No Cover Image</i>	<i>F_{Rao-Scott} (p-value)</i>	<i>Census Estimate^a</i>	<i>Gallup Estimate^b</i>
LGB	2.78 (n = 45)	5.36 (n = 29)	0.91** (n = 5)	1.93 (n = 11)	5.77 (0.003)	—	2.7
In same-sex relationship	1.34* (n = 21)	1.86 (n = 10)	1.47 (n = 7)	0.76 (n = 4)	1.02 (0.36)	0.6	—

N = 1,608. The unweighted and weighted data produced similar results. Results available upon request.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ significantly differ from Census estimate or Gallup estimate.

a. From Gates and Cooke (2011).

b. Not an official benchmark; from Gates and Newport (2013).

of 2.7 percent of Nebraska's population being LGB, but the percentage of LGB respondents in the default treatment was significantly lower than Gallup's estimate ($t = -3.16$, $p = 0.002$). These findings suggest that the LGB-inclusive cover design contributed to encouraging the participation of LGB sample members, the disclosure of LGB identity, or both, while the default design had a diminishing effect. The cover without images seemed to be neutral on the effect of LGB participation compared with the inclusive treatment and the Gallup benchmark.

Unexpectedly, the percentage of respondents who identified as being in same-sex relationships did not significantly differ among the cover design treatments ($F_{\text{Rao-Scott}}(1.87) = 1.02$, $p = 0.36$) and none of the pairwise comparisons were significant. Moreover, the percentage of respondents who reported being in same-sex relationships in each cover treatment did not significantly differ from the Census estimate for Nebraska; however, the percentage of respondents in same-sex relationships was significantly higher than the Census estimate among the total NASIS sample (1.34 vs 0.6 percent; $t = 2.13$, $p = 0.03$).

Completed Sample Characteristics

In general, across the demographic, political, and religious characteristics examined, there was little evidence that the LGB-inclusive cover design affected the participation of those from groups who research shows tend to be less tolerant of homosexuality. The results were consistent for the general population as a whole (LGB and non-LGB) and when examining only non-LGB respondents (results available upon request), which further shows no backlash occurred.

The completed sample pools did not significantly differ across the cover designs by sex, race, ethnicity, age, education, and having kids in the household ($p > 0.05$); all three treatments garnered similar respondents (**Table 2**). Additionally, none of the pairwise comparisons was significant ($p > 0.05$). These analyses indicate that, contrary to the hypothesis, there did not appear to be a backlash against the LGB-inclusive cover images in terms of the demographic composition of the completed sample.

T-tests also showed that the completed samples of each treatment similarly differed from ACS benchmarks for Nebraska for most characteristics and in similar directions and magnitudes as in other

Table 2. Demographic characteristics of NASIS respondents by cover design treatment (unweighted percentages).^a

	<i>Total</i> (<i>N</i> = 1,608)	<i>Inclusive</i> (<i>n</i> = 540)	<i>Default</i> (<i>n</i> = 493)	<i>No Cover Image</i> (<i>n</i> = 575)	χ^2 (<i>p</i> -value)	<i>ACS Estimate</i>
Sex						
Male	41.99***	40.00***	43.27**	42.73***	1.32	49.7
Female	58.01***	60.00***	56.73**	57.27***	(0.52)	50.3
Race						
White	95.17***	96.67***	93.64**	95.09***	4.91	90.1
Non-White	4.83***	3.33***	6.36**	4.91***	(0.09)	10.9
Ethnicity						
Hispanic	2.25***	2.87***	2.30***	1.62***	1.92	9.6
Not Hispanic	97.75***	97.13***	97.70***	98.38***	(0.38)	90.4
Age						
Mean	56.89	56.34	58.11	56.37		—
19–34	11.44***	12.78***	10.14***	11.30***	9.69	28.4
35–49	18.91***	20.00***	18.66***	18.09***	(0.14)	25.5
50–64	33.27***	31.11*	31.03*	37.22***		26.9
65+	36.38***	36.11***	40.16***	33.39***		19.1
Education						
HS or <	22.12***	21.48***	23.58***	21.43***	2.11	37.2
Some college	34.96	33.79	34.11	36.84	(0.72)	36.2
BA+	42.92***	44.73***	42.32***	41.73***		26.6
Children in household						
Yes	27.72***	28.88	27.43*	26.89**	0.54	31.9
No	72.28***	71.12	72.57*	73.11**	(0.76)	68.1

a. Results did not differ from weighted analyses. Results available upon request.

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$ denotes significant difference from ACS estimate based on a t-test.

address-based mail surveys (e.g., Link et al. 2008). The total NASIS sample and completed samples from each treatment have more females, whites, non-Hispanics, older people, and those with higher education compared with ACS benchmarks. The samples also have fewer young people and fewer people with lower education levels than Nebraska's population according to the ACS. The inclusive treatment resulted in a sample that more closely resembled Nebraska's population in terms of households with children, whereas the percentage of respondents who live in households with children was significantly lower than the ACS benchmark for the total NASIS sample and for the default and no-image treatments. For the ACS benchmark comparisons across the six demographic variables we examined, no single cover design stood out as obtaining a sample that better resembled Nebraska's population.

Table 3. Political and religious characteristics of NASIS respondents by cover design treatment (unweighted percentages).^a

	<i>Total</i> (<i>N</i> = 1,608)	<i>Inclusive</i> (<i>n</i> = 540)	<i>Default</i> (<i>n</i> = 493)	<i>No Cover</i> <i>Image</i> (<i>n</i> = 575)	χ^2 (<i>p</i> -value)
Political party					
Democrat	28.04	26.25	31.02	27.21	5.52
Republican	42.74	43.44	43.38	41.54	(0.24)
Independent/Other	29.22	30.31	25.60	31.25	
2012 Presidential vote					
Obama	37.75	36.79	37.58	38.83	0.70
Romney	48.27	48.92	48.38	47.54	(1.00)
Other	1.93	2.15	1.73	1.89	
Did not vote	12.05	12.13	12.31	11.74	
Political ideology					
Very liberal	3.49	2.95	2.22	5.06	20.34
Liberal	15.55	14.76	20.22	12.36	(0.01)
Moderate	36.53	35.04	35.56	38.76	
Conservative	34.79	35.83	33.56	34.83	
Very conservative	9.65	11.42	8.44	8.99	
Religion					
Protestant	55.82	56.53	57.20	53.92	2.79
Catholic	28.01	27.46	26.48	29.85	(0.84)
Other	4.93	4.48	5.72	4.66	
None	11.24	11.50	10.59	11.57	
Has a religious affiliation	88.76	88.50	89.41	88.43	0.29
None	11.24	11.50	10.59	11.57	(0.87)
Born-again Christian					
Yes	27.55	29.61	25.27	27.59	2.25
No	72.45	70.39	74.73	72.41	(0.33)

a. Results did not differ from weighted analyses. Results available upon request.

Religious attendance and religious influence also did not differ; results available upon request.

There were also few significant differences in the political and religious characteristics of the completed samples among the three treatments and no evidence that the LGB-inclusive design discouraged political conservatives and more religious individuals from responding (**Table 3**; $p > 0.05$). For instance, around 42–44 percent of respondents identified as Republican across the three cover designs and around 11–11.5 percent of respondents to each treatment reported not being religious. Only political ideology significantly differed among the treatments ($\chi^2(8) = 20.34$, $p = 0.01$), but pairwise comparisons showed political ideology of respondents to the inclusive treatment did not significantly differ from the other two treatments.

Table 4. Other characteristics of NASIS respondents by cover design treatment (unweighted percentages).^a

	<i>Total</i> (<i>N</i> = 1,608)	<i>Inclusive</i> (<i>n</i> = 540)	<i>Default</i> (<i>n</i> = 493)	<i>No Cover Image</i> (<i>n</i> = 575)	χ^2 (<i>p</i> -value)
LGB relative/friend/co-worker					
Yes	43.08	44.38	40.79	43.85	1.53
No	56.92	55.62	59.21	56.15	(0.46)
Geography					
Rural	18.51	18.06	17.90	19.44	0.52
Urban	81.49	81.94	82.10	80.56	(0.77)
Religious attendance					
Several times a week	6.10	6.35	6.37	5.63	8.03
Once a week	30.93	32.31	29.94	30.49	(0.63)
Once a month to nearly every week	19.91	21.35	20.59	17.97	
About once a year to several times a year	22.37	20.00	22.93	24.14	
Less than once a year	8.95	8.65	7.43	10.53	
Never	11.74	11.35	12.74	11.25	
Religious influence					
Very much	36.14	37.45	37.55	33.69	4.28
Quite a bit	27.66	26.05	29.11	27.96	(0.83)
Some	19.96	19.96	18.35	21.33	
A little	7.32	7.22	6.75	7.89	
None/Not religious	8.92	9.32	8.23	9.14	

a. Results did not differ from weighted analyses. Results available upon request.

Lastly, the respondents to the three cover designs also did not significantly differ by whether they know an LGB person or live in an urban or rural area, and none of the pairwise comparisons was significant ($p > 0.05$; Table 4).

Discussion and Conclusion

Our findings suggest that portraying LGB identity in surveys encourages LGB people to respond and disclose their sexual orientation, and that portraying only opposite-sex couples diminishes LGB people's participation and disclosure of their sexual identity. Our results also indicate that researchers can use cover designs to encourage LGB participation and disclosure of LGB identity in general population surveys without significant backlash effects. The LGB-inclusive cover image design led to more LGB respondents without significantly affecting

response rates or changing the demographic, political, and religious composition of the completed sample pool. Though our study does not allow for disentangling the effects that the inclusive cover image design had on LGB sample member's participation from the effect on disclosure of LGB identity, it indicates that cover images that portray social identity are one tool that researchers have to address the challenges of surveying LGB people in general population surveys.

The results also suggest that excluding LGB identity can increase the participation and disclosure challenges of surveying LGB people. We found the default treatment that did not include images of LGB people led to significantly fewer respondents identifying as LGB compared to the other image treatments and Gallup's LGB population estimate. These findings suggest that heteronormative cover imagery might have perpetuated the sense of stigma attached to LGB identity, resulting in fewer LGB sample members participating or leading them to conceal their LGB status. In contrast, the inclusive design might have conveyed an accepting, non-stigmatizing context that motivated LGB participation and/or disclosure of LGB identity.

The default cover design featuring images of opposite-sex couple families and individuals displaying themselves in typically gendered ways led to the lowest response rate compared to the treatments of no cover images and LGB-inclusive images. Overall, the negative effect that the default cover design had on participation drove our finding that any images (default + inclusive) led to significantly lower response rates than using no cover images. This result suggests that the choice of survey cover images is significant. The default design resulting in a lower response rate than no cover images may be because of the default design being more mundane and perhaps amateur looking compared to the cover without images. The cover without images may have garnered the highest participation because the simple design is professional and formal looking, and has less of a marketing/advertising look. In addition, the university sponsorship might have been more salient in the no cover image treatment because there were no images to distract from it. Easily identifiable and likely positively valued university sponsorship might have motivated participation (Edwards, Dillman, and Smyth 2014). Although we cannot empirically identify why the default cover design depressed response rates, the finding suggests that a mail survey's cover design

can affect response rates if questionnaire designers somehow get the cover design “wrong.”

These findings from a state like Nebraska are noteworthy. Nebraska had a same-sex marriage ban in place when NASIS 2013 was fielded (Adam 2003), and Republicans and people who identify as religious—both groups who tend to be more opposed to LGB rights—make up a majority of the population (Newport 2014; Saad 2013). Nebraska’s political and religious context would lead one to predict a much stronger participation backlash to placing images of same-sex couples and their families on the cover of a survey than what occurred. This prediction, though, may be giving too much weight to a few loud, outspoken voices against homosexuality and LGB rights. While some of these voices were evident in NASIS, with one respondent even marking out the images of same-sex couples with X’s and writing disparaging comments about LGB people, the analyses indicated that, on average, there was not a large backlash against the LGB-inclusivity, even among this more politically conservative and religious target population.

One possible explanation for not observing a backlash in who responded to the survey is that the images we chose for representing homosexuality in the inclusive treatment may have portrayed a more positively valued family context of LGB identity. Because people tend to view some depictions of homosexuality more favorably than others (Hooten, Noeva, and Hammonds 2009; Oakenfull and Greenlee 2005), the images that researchers choose to represent LGB identity can conjure up a specific perception of LGB identity for respondents (Ringer 1994). For example, respondents might construct different perceptions and meanings for images of same-sex couples with and without children, as we used in this study, than images of LGBT pride celebrations. The first set of images may establish a more positively valued (or at least less negatively valued) family-like perception of LGB people, while the second set of images may establish a more negatively valued context of LGB sexuality and advocacy for politically contentious issues. The more family-like imagery of LGB identity might be more innocuous and provoke less of a backlash among groups who tend to be less tolerant of LGB people than what might occur if using images portraying a more negatively valued context of LGB sexuality.

Another possible explanation is that advertisements to mass audiences increasingly feature LGB-inclusivity (Frizell 2014; Italie 2013;

Oakenfull and Greenlee 2005; Tuten 2005). People may more frequently see LGB-inclusivity in their everyday lives from advertising, television, movies, and increased visibility of LGB people generally, making them less sensitive to LGB-inclusivity in surveys. The rise in acceptance of homosexuality and LGB rights in the United States (Kiley 2014; McCarthy 2016; Pew Research Center 2013; Silver 2013) and in Nebraska (Hicks 2013; O'Connor 2013; Reed 2012) may also contribute to the observation of no differences in sample composition among those less tolerant of LGB-inclusivity. Additionally, those who are less tolerant of homosexuality might be acting in ways consistent with findings from cognitive interview testing of same-sex couple categories for marital status questions: they view the LGB-inclusivity unfavorably, but will still respond to the survey (Ridolfo, Perez, and Miller 2011). It is also possible that the omnibus survey's topics or university sponsorship held more leverage for motivating participation than the LGB-inclusivity had at diminishing it among those who tend to be less tolerant of homosexuality (Edwards, Dillman, and Smyth 2014). For example, the university sponsorship may have overridden any negative perceptions of the LGB cover images. If this is the case, then the same effect may not replicate with surveys sponsored by other, perhaps less positively valued organizations, such as LGBT rights groups or in surveys of different topics. Research to test this hypothesis is necessary.

Researchers should also replicate using LGB-inclusive cover images in surveys of other target populations. While having a Nebraska sample is a strength for testing the hypothesized backlash effect, it limits the ability to test the effects of the inclusive cover images on participation among more rare populations in the state, such as racial and ethnic minorities and Democrats and political liberals. Nebraska's same-sex marriage ban, which was in place at the time NASIS 2013 was fielded, might have also influenced findings related to how LGB respondents reported their marital status. Moreover, a smaller percentage of Nebraska's population identifies as LGB than other states (Gates and Newport 2013), which limits statistical power for analyses. Testing LGB-inclusive cover images in a target population with more LGB people might provide researchers with the necessary statistical power to examine how different types of LGB imagery affect participation and measurement among only LGB people. For example,

to examine whether different types of imagery leads to different types of LGB and non-LGB respondents. Our experiment, for instance, included images of same-sex couples with children and we observed significantly more sample members who reported living in households with children. Other types of LGB imagery, though, may result in different types of respondents or different impacts on LGB people's participation. For example, images of LGBT pride celebrations may result in fewer LGB people who are coupled with children and may affect the political and religious makeup of the completed sample. Also, generally, this research requires replication in areas with larger LGB populations, where same-sex marriages have historically been legal, in other political contexts (e.g., Utah, Mississippi, Massachusetts, Vermont), and with other LGB imagery. Researchers should also conduct cognitive interviews to understand how respondents view LGB-inclusivity to explain how LGB-inclusivity influences their motivation to participate and the motivation of LGB people to disclose their LGB identity. Cognitive interviews would be especially helpful for understanding how researchers can frame their research using LGB-inclusive tailoring in ways to build rapport and acceptance without making LGB people feel like a community being exploited for research (DeBlaere et al. 2010). Continued research is also necessary, given the rapidity with which public opinion on same-sex marriage and other LGB issues changes (Pew Research Center 2017), to examine if these findings change over time.

Future research should test other methods to encourage LGB participation and disclosure in surveys as well. Questionnaire designers should examine LGB-inclusive tailoring of other features (e.g., delivery envelope, cover letter, and sponsorship; web survey entrance screens) (Jans et al. 2015) and using only LGB imagery to determine whether there are limitations to how much inclusive tailoring can be incorporated without adversely affecting participation and measurement in general population surveys. Studies should investigate the interaction effects of multiple tailored features (e.g., cover images, sponsorship, and survey topics) to examine which features work together best to address the challenges of surveying LGB people in general population surveys. Also, our study focused exclusively on LGB people; however, sexual orientation and gender identity, despite being distinct social constructs, are typically discussed and studied together. Future

research should include experimental designs that allow for examining the effects of LGB-, transgender-, and LGBT-inclusive tailoring to encourage participation and reporting of sexual orientation and gender identity in surveys.

Expansion of research about inclusive tailoring for other groups, such as racial and ethnic minority groups, linguistic minorities, and religious groups, would add to the research literature about how researchers can use tailoring to encourage hard-to-survey groups' participation and disclosure of other stigmatized identities without detrimentally affecting participation and measurement of others in general population surveys. Studies that apply inclusive tailoring to other hard-to-survey groups would provide evidence about which types of tailoring is necessary for specific subgroups. For example, Fumagalli and colleagues (2013) found that tailored reports of past findings sent between waves of a longitudinal survey helped to combat attrition of subgroups that often have low cooperation rates in subsequent waves. They found that drawing on youth identity through photographs of young people and focusing on topics likely to interest youth (e.g., technology) in the reports positively affected participation among young people in their panel survey. More research, however, is necessary to understand which design features work best to encourage participation of specific hard-to-survey subgroups.

Researchers interested in collecting data from LGB people, nonetheless, should be encouraged by our study's results. The findings suggest that LGB-inclusivity might be valuable for gaining LGB participation and disclosure of their LGB identity in general population surveys. We show that cover designs for mail surveys can have some effect on participation and/or disclosure of group members' stigmatized identity. A much larger study is necessary, however, to examine how researchers should systematically design questionnaire covers to motivate participation and disclosure of identity among LGB people and other hard-to-survey subgroups in general population surveys. The overall takeaway, though, is that inclusive cover designs in mail surveys may be important for addressing participation and disclosure challenges of surveying LGB people without large detrimental effects on non-LGB sample members' participation.

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References

- Adam, B.D. 2003. "The Defense of Marriage Act and American Exceptionalism: The "Gay Marriage" Panic in the United States." *Journal of the History of Sexuality* 12 (2):259–76. doi:10.1353/sex.2003.0074.
- Angelini, J.R. and S.D. Bradley. 2010. "Homosexual Imagery in Print Advertisements: Attended, Remembered, but Disliked." *Journal of Homosexuality* 57:485–502. doi:10.1080/00918361003608665.
- Ashforth, B.E. and F. Mael. 1989. "Social Identity Theory and the Organization." *The Academy of Management Review* 14 (1):20–39. doi:10.5465/amr.1989.4278999.
- Badgett, L. and N. Goldberg. 2009. *Best Practices for Asking Questions about Sexual Orientation on Surveys*. Los Angeles, CA: Williams Institute Sexual Minority Assessment Research Team.

- Bates, N., T.J. DeMaio, C. Robins, and W. Hicks. 2012. *Classifying Relationship and Marital Status among Same-Sex Couples*. Center for Survey Measurement, Research, and Methodology Directorate Research Report Series (Survey Methodology #2012-01). U.S. Census Bureau.
- Baunach, D.M. 2012. "Changing Same-Sex Marriage Attitudes in America from 1988 through 2010." *Public Opinion Quarterly* 76 (2):364-78. doi:10.1093/poq/nfs022.
- Berry, S.H. and P.P. Gunn. 2014. "Conducting Research on Vulnerable and Stigmatized Populations." Pp. 368-78 in *Hard-To-Survey Populations*, edited by R. Tourangeau, B. Edwards, T.P. Johnson, K.M. Wolter, and N. Bates. Cambridge, UK: Cambridge Press.
- Bhat, S., T.W. Leigh, and D.L. Wardlow. 1996. "The Effect of Homosexual Imagery in Advertising on Attitude toward the Ad." *Journal of Homosexuality* 31 (1-2):161-76. doi:10.1300/Jo82v31n01_10.
- Borgerson, J.L., J.E. Schroeder, B. Blomberg, and E. Thorssén. 2006. "The Gay Family in the Ad: Consumer Responses to Non-Traditional Families in Marketing Communications." *Journal of Marketing Management* 22 (9-10):955-78. doi:10.1362/026725706778935646.
- Butler, J. 1990. *Gender Trouble*. New York: Routledge.
- Cahill, S.R. and H.J. Makadon. 2017. "If They Don't Count Us, We Don't Count: Trump Administration Rolls Back Sexual Orientation and Gender Identity Data Collection." *LGBT Health* 4 (3). doi:10.1089/lgbt.2017.0073.
- Carpenter, C. and G.J. Gates. 2008. "Gay and Lesbian Partnerships: Evidence from California." *Demography* 45 (3):573-90.
- Catania, J.A., D. Binson, J. Canchola, L.M. Pollack, and W. Hauck. 1996. "Effects of Interviewer Gender, Interviewer Choice, and Item Wording on Responses to Questions Concerning Sexual Behavior." *Public Opinion Quarterly* 60:345-75. doi:10.1086/297758.
- Catania, J.A., D. Gibson, D. Chitwood, and T. Coates. 1990. "Methodological Problems in AIDS Behavioral Research: Influences on Measurement Error and Participation Bias in Studies of Sexual Behavior." *Psychological Bulletin* 108 (3):339-62.
- Cheng, S. and B. Powell. 2005. "Small Samples, Big Challenges: Studying Atypical Family Forms." *Journal of Marriage and Family* 67:926-35. doi:10.1111/jomf.2005.67.issue-4.
- Coffman, K.B., L.C. Coffman, and K.M. Marzilli Ericson. 2013. "The size of the LGBT population and the magnitude of anti-gay sentiment are substantially underestimated." National Bureau of Economic Research (NBER) Working Paper No. 19508.
- Cox, S. and C. Gallois. 1996. "Gay and Lesbian Identity Development: A Social Identity Perspective." *Journal of Homosexuality* 30 (4):1-30. doi:10.1300/Jo82v30n04_01.
- Crocker, J., B. Major, and C. Steele. 1998. "Social Stigma." Pp. 504-53 in *Handbook of Social Psychology*, edited by D.T. Gilbert, S.T. Fiske, and G. Lindzey. Boston, MA: McGraw-Hill.

- de Rada, Diaz. 2005. "Influence of Questionnaire Design on Response to Mail Surveys." *International Journal of Social Research Methodology* 8 (1):61-78. doi:10.1080/1364557021000025991.
- Deaux, K. and K.A. Ethier. 1998. "Negotiating Social Identity." Pp. 302-21 in *Prejudice: The Target's Perspective*, edited by J. K. Swim and C. Stangor. San Diego, CA: Academic Press,
- DeBlaere, C., M. E. Brewster, A. Sarkees, and B. Moradi. 2010. "Conducting Research with LGB People of Color: Methodological Challenges and Strategies." *The Counseling Psychologist* 38 (3):331-62. doi:10.1177/0011000009335257.
- Dillman, D.A. 1991. "The Design and Administration of Mail Surveys." *Annual Review of Sociology* 17:225-49. doi:10.1146/annurev.so.17.080191.001301.
- Dillman, D.A., J.D Smyth, and L.M. Christian. 2014. *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NJ: John Wiley and Sons, Inc.
- Durso, L.E. and G.J. Gates. 2013. "Best Practices: Collecting and Analyzing Data on Sexual Minorities." Pp. 21-44 in *International Handbook on the Demography of Sexuality*, edited by A. K. Baumle. New York, NY: Springer,
- Edwards, M.L., D.A. Dillman, and J.D. Smyth. 2014. "An Experimental Test of the Effects of Survey Sponsorship on Internet and Mail Survey Response." *Public Opinion Quarterly* 78 (3):734-50. doi:10.1093/poq/nfu027.
- Federal Interagency Working Group on Improving Measurement of Sexual Orientation and Gender Identity in Federal Surveys. 2016. *Current Measures of Sexual Orientation and Gender Identity in Federal Surveys*. Washington, DC: Federal Committee on Statistical Methodology.
- Fredriksen-Goldstein, K.I. and H.J. Kim. 2017. "Aging with Pride: National Health, Aging, and Sexuality/Gender Study (NHAS)." *Gerontologist* 57 (Supplemental 1):S1-S14. doi:10.1093/geront/gnw212.
- Frey, J.H. 1991. "The Impact of Cover Design and First Questions on Response Rates for a Mail Survey of Skydivers." *Leisure Sciences* 13:67-76. doi:10.1080/01490409109513125.
- Frizzell, S. 2014. See Target's New Ad Featuring Same-Sex Parents and Their Son. *Time*, September 17.
- Fumagalli, L., H. Laurie, and P. Lynn. 2013. "Experiments with Methods to Reduce Attrition in Longitudinal Surveys." *Journal of the Royal Statistical Society A* 176 (Part 2):499-519. doi:10.1111/j.1467-985X.2012.01051.x.
- Gates, G.J. 2009. *Same-Sex Spouses and Unmarried Partners in the American Community Survey, 2008*. Los Angeles, CA: The Williams Institute.
- Gates, G.J. 2011. *How Many People are Lesbian, Gay, Bisexual, and Transgender?* Los Angeles, CA: The Williams Institute.
- Gates, G.J. and A.M. Cooke. 2011. *Nebraska Census Snapshot: 2010*. Los Angeles, CA: The Williams Institute.
- Gates, G.J. and F. Newport 2013. "LGBT Percentage Highest in DC, Lowest in North Dakota." Gallup. Retrieved October 2014 from <http://www.gallup.com/poll/160517/lgbt-percentage-highest-lowest-north-dakota.aspx>

- Gates, G.J. and R. Sell. 2007. "Measuring Gay and Lesbian Couples." Pp. 235-44 in *Handbook of Measurement Issues in Family Research*, edited by S. L. Hofferth and L. M. Casper. Mahwah, NJ: Lawrence Erlbaum Associates,
- Gaziano, C. 2005. "Comparative Analysis of Within-Household Respondent Selection Techniques." *Public Opinion Quarterly* 69:124-57. doi:10.1093/poq/nfi006.
- Gendall, P. 1996. "The Effect of Questionnaire Cover Design in Mail Surveys." *Marketing Bulletin* 7:30-38.
- Gendall, P. 2005. "Can You Judge a Questionnaire by Its Cover? the Effect of Questionnaire Cover Design on Mail Survey Response." *International Journal of Public Opinion Research* 17 (3):346- 61. doi:10.1093/ijpor/edho67.
- Goffman, E. 1963. *Stigma: Notes on the Management of Spoiled Identity*. Englewood Cliffs, NJ: Prentice-Hall.
- Grembowski, D. 1988. "Survey Questionnaire Salience." *American Journal of Public Health* 75 (11):1350. doi:10.2105/AJPH.75.11.1350.
- Groves, R.M. 2006. "Nonresponse Rates and Nonresponse Bias in Household Surveys." *Public Opinion Quarterly* 70 (5):646-75. doi:10.1093/poq/nfl033.
- Groves, R.M., E. Singer, and A. Corning. 2000. "Leverage-Saliency Theory of Survey Participation: Description and an Illustration." *Public Opinion Quarterly* 64:299-308.
- Groves, R.M., R.B. Cialdini, and M.P. Couper. 1992. "Understanding the Decision to Participate in a Survey." *Public Opinion Quarterly* 56 (4):475-95. doi:10.1086/269338.
- Haan, M. and Y. Ongena. 2014. "Tailored and Targeted Designs for Hard-To-Survey Populations." Pp. 555-574 in *Hard-To-Survey Populations*, edited by R. Tourangeau, B. Edwards, T.P. Johnson, K.M. Wolter, and N. Bates. Cambridge, UK: Cambridge Press.
- Herek, G.M. 2009. "Sexual Stigma and Sexual Prejudice in the United States: A Conceptual Framework." Pp. 65-111 in *Contemporary perspectives on lesbian, gay, and bisexual identities: The 54th Nebraska Symposium on Motivation*, edited by D. A. Hope. New York, NY: Springer.
- Herek, G.M. 2016. "A Nuanced View of Stigma for Understanding and Addressing Sexual and Gender Minority Health Disparities." *LGBT Health* 3 (6):397-99. doi:10.1089/lgbt.2016.0154.
- Hicks, N. 2013. "No Vote in Sight for Lincoln's Fairness Ordinance." *Lincoln Journal Star*. July 13.
- Hooten, M.A., K. Noeva, and F. Hammonds. 2009. "The Effects of Homosexual Imagery in Advertisements on Brand Perception and Purchase Intention." *Social Behavior and Personality* 37 (9):1231-38. doi:10.2224/sbp.2009.37.9.1231.
- Huffington Post. 2014. "Nabisco's Gay-Inclusive Honey Maid/Teddy Grahams Commercial Slammed by One Million Moms." March 24.
- Italie, L. 2013. "Gay-Themed Ads are Becoming More Mainstream." *HuffPost Gay Voices*. March 6.

- Jans, M., R. Park, J. Rauch, D. Grant, and S. Edwards. 2015. "Logos and Inserts Can Reduce Survey Return Rates: An Experiment in California." *Survey Practice* 8 (4):1-11. doi:10.29115/SP-2015-0017.
- Jourard, S. 1971. *Self-Disclosure: An Experimental Analysis of the Transparent Self*. New York, NY: John Wiley and Sons, Inc.
- Kaufman, J. M. and C. Johnson. 2004. "Stigmatized Individuals and the Process of Identity." *The Sociological Quarterly* 45:807-33. doi:10.1111/j.1533-8525.2004.tb02315.x.
- Keeter, S., N. Hatley, C. Kennedy, and A. Lau. 2017. *What Low Response Rates Mean for Telephone Surveys*. Washington, DC: Pew Research Center.
- Kelly, B. C., R. M. Carpiano, A. Easterbrook, and J. T. Parsons. 2014. "Exploring The Gay Community Question: Neighborhood and Network Influences on The Experience Of Community among Urban Gay Men." *The Sociological Quarterly* 55 (1):23-48. doi: 10.1111/tsq.12041.
- Kiley, J. 2014. *61% of Young Republicans Favor Same-Sex Marriage*. Washington, DC: Pew Research Center.
- Lavrakas, P. J., G. Benson, S. Blumberg, T. Buskirk, I. F. Cervantes, L. Christian, D. Dutwin, M. Fahimi, H. Fienberg, T. Guterbock, et al. 2017. *The Future of U.S. General Population Telephone Survey Research*. Oakbrook, Terrace, IL: American Association for Public Opinion Research. <https://www.aapor.org/Education-Resources/Reports/The-Future-Of-U-S-General-Population-Telephone-Sur.aspx>
- Levin, S. and C. van Laar. 2006. *Stigma and Group Inequality: Social Psychological Perspectives*. Mahwah, NJ: Erlbaum.
- Lewis, G.B. 2011. "The Friends and Family Plan: Contact with Gays and Support for Gay Rights." *The Policy Studies Journal* 39 (2):217-38. doi:10.1111/psj.2011.39.issue-2.
- Link, M.W., M.P. Battaglia, M.R. Frankel, L. Osborn, and A.H. Mokdad. 2008. "A Comparison of Address-Based Sampling (ABS) versus Random-Digit Dialing (RDD) for General Population Surveys." *Public Opinion Quarterly* 72 (1):6-27. doi:10.1093/poq/nfn003.
- Lofquist, D. and J. Lewis 2014. "Improving Measurement of Same-Sex Couples." Paper presented at the annual meeting of the Population Association of American (PAA), Boston, MA.
- MacCartney, D., L.M.V Badgett, and G.J. Gates. 2007. *Census Snapshot: Methodological Details*. Washington, DC: The Williams Institute.
- Marken, S. 2018. *Still Listening: The State of Telephone Surveys*. Washington, DC: Gallup. <http://news.gallup.com/opinion/methodology/225143/listening-state-telephone-surveys.aspx>
- McCarthy, J. 2016. *Americans' Support for Gay Marriage Remains High, at 61%*. Washington, DC: Gallup.
- McFarlane Geisen, E., J. Murphy, M.G. Olmsted, and J. Severance 2010. "Exploring Visual Enhancements on a Mail Survey of Physicians." Poster presented at the 2010 American Association of Public Opinion Research conference, Chicago, IL.

- Meezan, W. and J. Martin. 2009. *Handbook of Research with Lesbian, Gay, Bisexual, and Transgender Population*. New York, NY: Routledge.
- Meyer, I.H. and M.E. Northridge. 2006. *The Health of Sexual Minorities: Public Health Perspectives on Lesbian, Gay, Bisexual, and Transgender Populations*. New York, NY: Springer.
- Michaels, S. 2013. "Sexual Behavior and Practices: Data and Measurement." Pp. 11–20 in *International Handbook on the Demography of Sexuality*, edited by A. K. Baumle. New York, NY: Springer.
- Miller, C.T. and B. Major. 2000. "Coping with Stigma and Prejudice." Pp. 243–72 in *The Social Psychology of Stigma*, edited by T. F. Heatherton, R. E. Kleck, M. R. Hebl, and J. G. Hull. New York, NY: Guilford Press.
- Nagoshi, J.L., K.A. Adams, H.K. Terrell, E.D. Hill, S. Brzuzy, and C.T. Nagoshi. 2008. "Gender Differences in Correlates of Homophobia and Transphobia." *Sex Roles* 59:521–31. doi:10.1007/s11199-008-9458-7.
- Nederhof, A.J. 1988. "Effects of a Final Telephone Reminder and Questionnaire Cover Design in Mail Surveys." *Social Science Research* 17:353–61. doi:10.1016/0049-089X(88)90008-7.
- Newport, F. 2014. "Mississippi and Alabama Most Protestant States in US." Gallup. Retrieved June 2015 from <http://www.gallup.com/poll/167120/mississippi-alabama-protestant-states.aspx>
- O'Connor, M. 2013. "Polls show shift on same-sex marriage, but local foes don't lose heart." *Omaha World-Herald*, April 9.
- Oakenfull, G.K. and T.B. Greenlee. 2005. "Queer Eye for a Gay Guy: Using Market-Specific Symbols in Advertising to Attract Gay Consumers without Alienating the Mainstream." *Psychology and Marketing* 22 (5):421–39. doi:10.1002/(ISSN)1520-6793.
- Peñaloza, L. 1996. "We're Here, We're Queer, and We're Going Shopping! A Critical Perspective on the Accommodation of Gays and Lesbians in the US Marketplace." *Journal of Homosexuality* 31 (1/2):9–41. doi:10.1300/J082v31n01_02.
- Pew Research Center. 2013. "Growing Support for Gay Marriage: Changed Minds and Changing Demographics." Retrieved July 2014 from <http://www.people-press.org/files/legacy-pdf/3-20-13%20Gay%20Marriage%20Release.pdf>
- Pew Research Center. 2017. "Changing Attitudes on Gay Marriage." Retrieved July 2017 from <http://www.pewforum.org/fact-sheet/changing-attitudes-on-gay-marriage/>
- Puntoni, S., J. Vanhamme, and J. Visscher. 2011. "Two Birds and One Stone." *Journal of Advertising* 40 (1):25–41. doi:10.2753/JOA0091-3367400102.
- Ragins, B.R., R. Singh, and J.M. Cornwell. 2007. "Making the Invisible Visible: Fear and Disclosure of Sexual Orientation at Work." *Journal of Applied Psychology* 92 (4):1103–18. doi:10.1037/0021-9010.92.4.1103.
- Ramirez-Valles, J., D. D. Heckathorn, R. Vazquez, R. M. Diaz, and R. T. Campbell. 2005. "From Networks to Populations: The Development and Application of Respondent-Driven Sampling among IDUs and Latino Gay Men." *AIDS and Behavior* 9:387–402. doi:10.1007/s10461-005-9012-3.

- Reed, L. 2012. "NU to insure domestic partners." Omaha World Herald. June 8.
- Ridolfo, H., K. Perez, and K. Miller. 2011. Testing of Sexual Identity and Health-Related Questions: Results of Interviews Conducted May-July 2005. Atlanta, GA: National Center for Health Statistics, Centers for Disease Control and Prevention.
- Ringer, R.J. 1994. *Queer Words, Queer Images: Communication and the Construction of Homosexuality*. New York, NE: New York University Press.
- Saad, L. 2013. "In the US, Blue States Outnumber Red States, 20 to 12." Gallup. Retrieved October 14 from <http://www.gallup.com/poll/160175/blue-states-outnumber-red-states.aspx>
- Savin-Williams, R.C. and K. Joyner. 2014. "The Dubious Assessment of Gay, Lesbian, and Bisexual Adolescents of Add Health." *Archives of Sexual Behavior* 43:413-22. doi:10.1007/s10508-013-0219-5.
- Schope, R.D. 2002. "The Decision to Tell: Factors Influencing the Disclosure of Sexual Orientation by Gay Men." *The Journal of Gay and Lesbian Social Services* 14 (1):1-22. doi:10.1300/J041v14n01_01.
- Schumm, W.R. 2012. "Methodological Decisions and the Evaluation of Possible Effects of Different Family Structures on Children: The New Family Structures Survey (NFSS)." *Social Science Research* 41:1357-66. doi:10.1016/j.ssresearch.2012.08.011.
- Sieczkowski, C. 2012. "Ellen DeGeneres Ad: One Million Moms Angry over JC Penney Christmas Commercial." *Huffington Post*. December 7.
- Silver, N. 2013. "How Opinion on Same-Sex Marriage Is Changing and What It Means." *New York Times*. March 26.
- Solomon, A. 2014. "Honey Main and the Business of Love." *The New Yorker*. April 5.
- Sonnenfeld, K., R. Af Ursin, B.L. Carlson, and S. Sprachman 2009. "When a Face Doesn't Launch a Thousand Ships: Including a Personalized Image on a Mail Questionnaire." Paper presented at the annual meeting of the American Association for Public Opinion Research (AAPOR).
- Stall, R., D.D. Matthews, M.R. Friedman, S. Kinsky, J.E. Egan, R.W.S. Coulter, J.R. Blosnich, and N. Markovic. 2016. "The Continuing Development of Health Disparities Research on Lesbian, Gay, Bisexual, and Transgender Individuals." *American Journal of Public Health* 106 (5):787-89. doi:10.2105/AJPH.2016.303183.
- Stange, M. 2014. "Testing 'Same-sex' and 'Opposite-sex' Response Options for Marital Status Questions in a General Population Mail Survey" Paper presented at the Midwest Association for Public Opinion Research Annual Conference. Chicago, IL.
- Sylva, D., G. Rieger, J.A.W. Linsenmeier, and J.M. Bailey. 2009. "Concealment of Sexual Orientation." *Archives of Sexual Behavior*. 39 (1).
- Tajfel, H. and J.C. Turner. 1979. "An Integrative Theory of Intergroup Conflict." Pp. 7-24 in *The Social Psychology of Intergroup Relations*, edited by W. G. Austin and S. Worchel. Monterey, CA: Brooks/Cole.

- The GenIUSS Group. 2014. Best Practices for Asking Questions to Identify Transgender and Other Gender Minority Respondents on Population-Based Surveys. edited by J.L. Herman. Los Angeles, CA: The Williams Institute.
- Tuten, T.L. 2005. "The Effect of Gay-Friendly and Non-Gay-Friendly Cues on Brand Attitudes: A Comparison of Heterosexual and Gay/Lesbian Reactions." *Journal of Marketing Management* 21:441–61. doi:10.1362/0267257053779073.
- Umberson, D., M.B. Thomeer, R.A. Kroeger, A.C. Lodge, and M. Xu. 2015. "Challenges and Opportunities for Research on Same-Sex Relationships." *Journal of Marriage and Family* 77 (1):96–111. doi:10.1111/jomf.12155.
- Ward, B.W., J.H. Dahlhamer, A.M. Galinsky, and S.S. Joestl. 2014. "Sexual Orientation and Health among US Adults: National Health Interview Survey, 2013." *National Health Statistics Reports* 77: 1–10.
- Whitehead, J., J. Shaver, and R. Stephenson. 2016. "Outness, Stigma, and Primary Health Care Utilization among Rural LGBT Populations." *PLoS ONE* 11 (1). doi:10.1371/journal.pone.0146139.
- Wong, C.M. 2016. "Tylenol's #Howwefamily Campaign Uses LGBT Couples to Portray Changing Face of the Family." *Huffington Post*.
- Wong, C.M. 2017. "Coke's Sexy New Ad Shows Brother and Sister Competing for the Pool Boy." *Huffington Post*.